

#### ABSTRACT OF THE DISCLOSURE

In a synchronous multiplex network including a plurality of multiplex transmission apparatuses, an overhead is passed through intervening multiplex transmission apparatuses such that administration and maintenance operation information is transmitted and received through the overhead between arbitrary multiplex transmission apparatuses. The multiplex transmission apparatus receives a multiplexed signal comprising a payload having a plurality of main signals multiplexed therein and overhead bytes including a plurality of administration and maintenance operation information, performs termination processing for the administration and maintenance operation information and transmission processing for the payload, thereafter converts the multiplexed signal into a different multiplexed signal comprising a payload which has been processed for transmission and a plurality of administration and maintenance operation information, and transmits the different multiplexed signal. The multiplex transmission apparatus comprises an overhead passing processing circuit composed of a circuit for extracting predetermined administration and maintenance operation information from the received multiplexed signal, a crossconnecting circuit for crossconnecting information extracted by the extraction circuit stage, and an insertion circuit for inserting an output of the crossconnecting circuit into a predetermined

location in the overhead of the multiplexed signal to be transmitted.